

| Substitute for form 1449A/PTO<br><br><b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br><br>(use as many sheets as necessary) |                          |                      |                                      | <b>Complete if Known</b>                        |   |
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|  |                          |                      |                                      | Application Number                              |   |
|  |                          |                      |                                      | Filing Date                                     |   |
|  |                          |                      |                                      | First Named Inventor                            |   |
|  |                          |                      |                                      | Group Art Unit                                  |   |
|  |                          |                      |                                      | Examiner Name                                   |   |
| Sheet  | 1                        | of                   | 5                                    | Attorney Docket Number                          |   |
| U.S. PATENT DOCUMENTS  |                          |                      |                                      |   |   |
| Examiner<br>Initials*  | Cite<br>No. <sup>1</sup> | U.S. Patent Document |                                      | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited<br>Document MM-DD-YYYY |
|  |                          | Number               | Kind Code <sup>2</sup><br>(if known) |   |   |
| /MS/   | A1                       | 6,300,936            |                                      | Braun et al.                                    | 10/09/2001  |
|  | A2                       | 6,275,213            |                                      | Tremblay et al.                                 | 08/14/2001  |
|  | A3                       | 6,256,011            |                                      | Culver  | 07/03/2001  |
|  | A4                       | 6,243,078            |                                      | Rosenberg                                       | 06/05/2001  |
|  | A5                       | 6,219,032            |                                      | Rosenberg et al.                                | 04/17/2001  |
|  | A6                       | 6,211,861            |                                      | Rosenberg                                       | 04/03/2001  |
|  | A2                       | 6,198,206            |                                      | Saarmaa et al.                                  | 03/06/2001  |
|  | A3                       | 6,184,868            |                                      | Shaholian et al.                                | 02/06/2001  |
|  | A4                       | 6,166,723            |                                      | Schena et al.                                   | 12/26/2000  |
|  | A5                       | 6,154,201            |                                      | Levin et al.                                    | 11/28/2000  |
|  | A6                       | 6,128,006            |                                      | Rosenberg et al.                                | 10/03/2000  |
|  | A7                       | 6,100,874            |                                      | Schena et al.                                   | 08/08/2000  |
|  | A8                       | 6,088,019            |                                      | Rosenberg                                       | 07/11/2000  |
|  | A9                       | 6,078,308            |                                      | Rosenberg et al.                                | 06/20/2000  |
|  | A10                      | 6,044,646            |                                      | Silverbrook                                     | 04/04/2000  |
|  | A11                      | 6,028,593            |                                      | Rosenberg et al.                                | 02/22/2000  |
|  | A12                      | 6,001,014            |                                      | Ogata et al.                                    | 12/14/1999  |
|  | A13                      | 5,990,869            |                                      | Kubica et al.                                   | 11/23/1999  |
|  | A14                      | 5,986,643            |                                      | Harvill et al.                                  | 11/16/1999  |
|  | A15                      | 5,984,880            |                                      | Lander et al.                                   | 11/16/1999  |
|  | A16                      | 5,979,892            |                                      | Smith   | 11/09/1999  |
|  | A17                      | 5,973,689            |                                      | Gallery   | 10/26/1999  |
|  | A18                      | 5,973,670            |                                      | Barber et al.                                   | 10/26/1999  |
|  | A19                      | 5,959,613            |                                      | Rosenberg et al.                                | 09/28/1999  |
|  | A20                      | 5,956,016            |                                      | Kuenzner et al.                                 | 09/21/1999  |
|  | A21                      | 5,914,705            |                                      | Johnson et al.                                  | 06/22/1999  |
|  | A22                      | 5,903,085            |                                      | Karam   | 05/11/1999  |
|  | A23                      | 5,897,437            |                                      | Nishiumi et al.                                 | 04/27/1999  |
|  | A24                      | 5,894,263            |                                      | Shimakawa et al.                                | 04/13/1999  |
|  | A25                      | 5,889,670            |                                      | Schuler et al.                                  | 03/30/1999  |
|  | A26                      | 5,857,986            |                                      | Morivasu  | 01/12/1999  |
|  | A27                      | 5,825,308            |                                      | Rosenberg                                       | 10/20/1998  |
|  | A28                      | 5,805,140            |                                      | Rosenberg et al.                                | 09/08/1998  |
|  | A29                      | 5,790,108            |                                      | Salcudean et al.                                | 08/04/1998  |
|  | A30                      | 5,785,630            |                                      | Bobick, et al.                                  | 07/28/1998  |
|  | A31                      | 5,784,052            |                                      | Keyson  | 07/21/1998  |
|  | A32                      | 5,781,172            |                                      | Engel et al.                                    | 07/14/1998  |
|  | A33                      | 5,766,016            |                                      | Sinclair et al.                                 | 06/16/1998  |
|  | A34                      | 5,754,023            |                                      | Roston et al.                                   | 05/19/1998  |
|  | A35                      | 5,742,278            |                                      | Chen et al.                                     | 04/21/1998  |
|  | A36                      | 5,736,978            |                                      | Hasser et al.                                   | 04/07/1998  |
|  | A37                      | 5,734,373            |                                      | Rosenberg et al.                                | 03/31/1998  |
|  | A38                      | 5,714,978            |                                      | Yamanaka et al.                                 | 02/03/1998  |
| /MS/   | A39                      | 5,709,219            |                                      | Chen et al.                                     | 01/20/1998  |

<sup>1</sup> Unique citation designation number.

<sup>2</sup> See attached Kinds of U.S. Patent Documents.

|                       |                |                    |            |
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| Sheet                | 2   | of        | 5 | IMMR-060/04US          |            |
| /MS/                 | A40 | 5,696,537 |   | Solhjell               | 12/09/1997 |
|                      | A41 | 5,691,747 |   | Amano                  | 11/25/1997 |
|                      | A42 | 5,684,722 |   | Thorner et al.         | 11/04/1997 |
|                      | A43 | 5,666,138 |   | Culver                 | 09/09/1997 |
|                      | A44 | 5,643,087 |   | Marcus et al.          | 07/01/1997 |
|                      | A45 | 5,642,469 |   | Hannaford et al.       | 06/24/1997 |
|                      | A46 | 5,629,594 |   | Jacobus et al.         | 05/13/1997 |
|                      | A47 | 5,625,576 |   | Massie et al.          | 04/29/1997 |
|                      | A48 | 5,589,828 |   | Armstrong              | 12/31/1996 |
|                      | A49 | 5,583,478 |   | Renzi                  | 12/10/1996 |
|                      | A50 | 5,565,840 |   | Thorner et al.         | 10/15/1996 |
|                      | A51 | 5,547,382 |   | Yamasaki et al.        | 08/20/1996 |
|                      | A52 | 5,542,672 |   | Meredith               | 08/06/1996 |
|                      | A53 | 5,506,605 |   | Paley                  | 04/09/1996 |
|                      | A54 | 5,489,812 |   | Furuhata et al.        | 02/06/1996 |
|                      | A55 | 5,466,213 |   | Hogan et al.           | 11/14/1995 |
|                      | A56 | 5,451,924 |   | Massimino et al.       | 09/19/1995 |
|                      | A57 | 5,440,183 |   | Denne                  | 08/08/1995 |
|                      | A58 | 5,414,337 |   | Schuler                | 05/09/1995 |
|                      | A59 | 5,405,152 |   | Katanics et al.        | 04/11/1995 |
|                      | A60 | 5,399,091 |   | Mitsumoto              | 03/21/1995 |
|                      | A61 | 5,388,992 |   | Franklin et al.        | 02/14/1995 |
|                      | A62 | 5,334,027 |   | Wherlock               | 08/02/1994 |
|                      | A63 | 5,309,140 |   | Everett, Jr., et al.   | 05/03/1994 |
|                      | A64 | 5,299,810 |   | Pierce et al.          | 04/05/1994 |
|                      | A65 | 5,296,871 |   | Paley                  | 03/22/1994 |
|                      | A66 | 5,275,174 |   | Cook                   | 01/04/1994 |
|                      | A67 | 5,271,290 |   | Fischer                | 12/21/1993 |
|                      | A68 | 5,240,417 |   | Smithson et al.        | 08/31/1993 |
|                      | A69 | 5,212,473 |   | Louis                  | 05/18/1993 |
|                      | A70 | 5,203,563 |   | Loper, III             | 04/20/1993 |
|                      | A71 | 5,186,629 |   | Rohen                  | 02/16/1993 |
|                      | A72 | 5,185,561 |   | Good et al.            | 02/09/1993 |
|                      | A73 | 5,184,319 |   | Kramer                 | 02/02/1993 |
|                      | A74 | 5,146,566 |   | Hollis, Jr. et al.     | 09/08/1992 |
|                      | A75 | 5,078,152 |   | Bond et al.            | 01/07/1992 |
|                      | A76 | 5,038,089 |   | Szakaly                | 08/06/1991 |
|                      | A77 | 5,035,242 |   | Franklin et al.        | 07/30/1991 |
|                      | A78 | 5,022,407 |   | Horch et al.           | 06/11/1991 |
|                      | A79 | 5,019,761 |   | Kraft                  | 05/28/1991 |
|                      | A80 | 4,949,119 |   | Moncrief et al.        | 08/14/1990 |
|                      | A81 | 4,934,694 |   | McIntosh               | 06/19/1990 |
|                      | A82 | 4,930,770 |   | Baker                  | 06/05/1990 |
|                      | A83 | 4,896,554 |   | Culver                 | 01/30/1990 |
|                      | A84 | 4,891,764 |   | McIntosh               | 01/02/1990 |
|                      | A85 | 4,868,549 |   | Affinito et al.        | 09/19/1989 |
|                      | A86 | 4,795,296 |   | Jau                    | 01/03/1989 |
|                      | A87 | 4,794,392 |   | Selinko                | 12/27/1988 |
|                      | A88 | 4,787,051 |   | Olson                  | 11/22/1988 |
|                      | A89 | 4,731,603 |   | McRae et al.           | 03/15/1988 |
|                      | A90 | 4,713,007 |   | Alban                  | 12/15/1987 |
|                      | A91 | 4,708,656 |   | de Vries et al.        | 11/24/1987 |
|                      | A92 | 4,599,070 |   | Hladky et al.          | 07/08/1986 |
|                      | A93 | 4,581,491 |   | Boothroyd              | 04/08/1986 |
| /MS/                 | A94 | 4,550,617 |   | Fraligner et al.       | 11/05/1985 |

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|--------------------|----------------|-----------------|------------|
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|   |      |           | Filing Date          | February 23, 2004      |               |
|   |      |           | First Named Inventor | Erik J. SHAHOIAN       |               |
|   |      |           | Group Art Unit       |                        |               |
|   |      |           | Examiner Name        |                        |               |
| Sheet   | 3    | of        | 5                    | Attorney Docket Number | IMMR-060/04US |
| /MS/  | A95  | 4,513,235 |                      | Acklam et al.          | 04/23/1985    |
|   | A96  | 4,414,984 |                      | Zarudiansky            | 11/15/1983    |
|   | A97  | 4,236,325 |                      | Hall et al.            | 12/02/1980    |
|   | A98  | 4,160,508 |                      | Salisbury, Jr.         | 07/10/1979    |
|   | A99  | 3,919,691 |                      | Noll                   | 11/11/1975    |
|   | A100 | 3,911,416 |                      | Feder                  | 10/07/1975    |
|   | A101 | 3,903,614 |                      | Diamond et al.         | 09/09/1975    |
|   | A102 | 3,902,687 |                      | Hightower              | 09/02/1975    |
|   | A103 | 3,623,064 |                      | Kagan                  | 11/23/1971    |
|   | A104 | 3,517,446 |                      | Corlyon et al.         | 06/30/1970    |
|   | A105 | 3,497,668 |                      | Hirsch                 | 02/24/1970    |
|   | A106 | 3,220,121 |                      | Cutler                 | 11/30/1965    |
| /MS/  | A107 | 3,157,853 |                      | Hirsch                 | 11/17/1964    |

| FOREIGN PATENT DOCUMENTS |                       |                         |                     |                                   |   |  |                |
|--------------------------|-----------------------|-------------------------|---------------------|-----------------------------------|---|--|----------------|
| Examiner Initials*       | Cite No. <sup>1</sup> | Foreign Patent Document |                     |                                   | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | T <sup>2</sup> |
|                          |                       | Office <sup>1</sup>     | Number <sup>2</sup> | Kind Code <sup>3</sup> (if known) |   |  |                |
| /MS/                     | B1                    |                         | WO 00/03319         |                                   |   | 01/20/2000                                       |                |
|                          | B2                    |                         | WO 98/32112         |                                   |   | 07/23/1998                                       |                |
|                          | B3                    |                         | WO-97/31333         |                                   |   | 08/28/1997                                       |                |
|                          | B4                    |                         | WO 95/20788         |                                   |   | 08/03/1995                                       |                |
|                          | B5                    |                         | 0 626 634           | A2                                |   | 11/30/1994                                       |                |
|                          | B6                    |                         | 0 607 580           | A1                                |   | 07/27/1994                                       |                |
|                          | B7                    |                         | HS-86387            |                                   |   | 11/22/1993                                       |                |
|                          | B8                    |                         | WO 92/00559         |                                   |   | 01/09/1992                                       |                |
|                          | B9                    |                         | 0 349 086           | A1                                | Stork Kwant B.V.                                | 01/03/1990                                       |                |
|                          | B10                   |                         | 0 265 011           | A1                                |   | 04/27/1988                                       |                |
| /MS/                     | B11                   |                         | S62-194389          |                                   |   | 12/10/1987                                       |                |

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS |                       |   |  |  |                |
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| /MS/  | C1                    | Balgrie, "Electric Control Loading - A Low Cost, High Performance Alternative," <i>Proceedings of Interservice/Industry Training Systems Conference</i> , pp. 247-254, November 6-8, 1990   |  |  |                |
| /MS/  | C2                    | Iwata, "Pen-based Haptic Virtual Environment," 0-7803-1363-1/93 IEEE, pp. 287-292, 1993   |  |  |                |
| /MS/  | C3                    | Russo, "The Design and Implementation of a Three Degree of Freedom Force Output Joystick," <i>MIT Libraries Archives</i> pp. 1-131, May 1990, archived 8/14/90  |  |  |                |

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<sup>2</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

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| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS |     |   |  |
|---|-----|---|--|
| /MS/  | C4  | Brooks et al., "Hand Controllers for Teleoperation - A State-of-the-Art Technology Survey and Evaluation," <i>JPL Publication 83-11</i> , NASA-CR-175890; N85-28559, pp. 1-84, 03/11/1985   |  |
|   | C5  | Jones et al., "A perceptual analysis of stiffness," ISSN 0014-4819 Springer International (Springer-Verlag); <i>Experimental Brain Research</i> , Vol. 79, No. 1, pp. 150-156, 1990   |  |
|   | C6  | Burdea et al., "Distributed Virtual Force Feedback, Lecture Notes for Workshop on Force Display in Virtual Environments and its Application to Robotic Teleoperation," <i>1993 IEEE International Conference on Robotics and Automation</i> , pp. 25-44, 05/02/1993 |  |
|   | C7  | Snow et al., "Model-X Force-Reflecting-Hand-Controller," NT Control No. NPO-17851; JPL Case No. 7348, pp. 1-4 with 45 pages of attachments, 06/15/1989  |  |
|   | C8  | Ouh-Young, "Force Display in Molecular Docking," Doctoral Dissertation, University of North Carolina at Chapel Hill, UMI Order No. 9034744, p. 1-369, 1990  |  |
|   | C9  | Tadros, "Control System Design for a Three Degree of Freedom Virtual Environment Simulator Using Motor/Brake Pair Actuators," <i>MIT Archive</i> , pp. 1-88, February 1990, archived 8/13/90  |  |
|   | C10 | Caldwell et al., "Enhanced Tactile Feedback (Tele-Taction) Using a Multi-Functional Sensory System," 1050-4729/93, pp. 955-960, 1993  |  |
|   | C11 | Adelstein et al., "Design and Implementation of a Force Reflecting Manipulandum for Manual Control research," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 1-12, 1992   |  |
|   | C12 | Gulow et al., "Controlled Impedance Test Apparatus for Studying Human Interpretation of Kinesthetic Feedback," <i>WALL-1100</i> , pp. 332-337   |  |
|   | C13 | Stanley et al., "Computer Simulation of Interacting Dynamic Mechanical Systems Using Distributed Memory Parallel Processors," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 35-61, ASME 1992   |  |
|   | C14 | Russo, "Controlling Dissipative Magnetic Particle Brakes in Force Reflective Devices," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 63-70, ASME 1992  |  |
|   | C15 | Kontarinis et al., "Display of High-Frequency Tactile Information to Teleoperators," <i>Telemannipulator Technology and Space Telerobotics</i> , Won S. Kim, Editor, Proc. SPIE Vol. 2057, pp. 40-50, Sep. 7-9, 1993  |  |
|   | C16 | Patriek et al., "Design and Testing of A Non-reactive, Fingertip, Tactile Display for Interaction with Remote Environments," <i>Cooperative Intelligent Robotics in Space</i> , Rui J. deFigueiredo et al, Editor, Proc. SPIE Vol. 1387, pp. 215-222, 1990          |  |
|   | C17 | Adelstein, "A Virtual Environment System For The Study of Human Arm Tremor," <i>Ph.D. Dissertation</i> , Dept. of Mechanical Engineering, MIT, June 1989, archived 3/13/90  |  |
|   | C18 | Bejczy, "Sensors, Controls, and Man-Machine Interface for Advanced Teleoperation," <i>Science</i> , Vol. 208, No. 4450, pp. 1327-1335, 1980   |  |
|   | C19 | Bejczy et al., "Generalization of Bilateral Force-Reflecting Control of Manipulators," <i>Proceedings Of Fourth CISM-IFTOMM</i> , Sep. 8-12, 1981   |  |
|   | C20 | McAfee et al., "Teleoperator Subsystem/Telerobot Demonstrator: Force Reflecting Hand Controller Equipment Manual," <i>JPL 1988, JPL D-5172</i>  |  |
|   | C21 | Minsky, "Computational Haptics: The Sandpaper System for Synthesizing Texture for a Force-Feedback Display," <i>Ph.D. Dissertation</i> , MIT, June 1995, archived 7/6/95  |  |
|   | C22 | Jacobsen et al., "High Performance, Dextrous Telerobotic Manipulator With Force Reflection," <i>Intervention/ROV '91 Conference &amp; Exposition</i> , Hollywood, Florida, May 21-23, 1991  |  |
|   | C23 | Shimoga, "Finger Force and Touch Feedback Issues in Dexterous Telemannipulation," <i>Proceedings of Fourth Annual Conference on Intelligent Robotic Systems for Space Exploration</i> , Rensselaer Polytechnic Institute, Sep. 30- Oct. 1, 1992                     |  |
|   | C24 | IBM Technical Disclosure Bulletin, "Mouse Ball-Actuating Device With Force and Tactile Feedback," Vol. 32, No. 9B, February 1990  |  |
|   | C25 | Terry et al., "Tactile Feedback In A Computer Mouse," <i>Proceedings of Fourteenth Annual Northeast Bioengineering Conference</i> , University of New Hampshire, March 10-11, 1988  |  |
| V   | C26 | Howe, "A Force-Reflecting Teleoperated Hand System for the Study of Tactile Sensing in Precision Manipulation," <i>Proceedings of the 1992 IEEE International Conference on Robotics and Automation</i> , Nice, France, May 1992                                    |  |
| /MS/  | C27 | Eberhardt et al., "OMAR - A Haptic display for speech perception by deaf and deaf-blind individuals," <i>IEEE Virtual Reality Annual International Symposium</i> , Seattle, WA, Sep. 18-22, 1993  |  |

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| /MS/  | C28      | Rabinowitz et al., "Multidimensional tactile displays: Identification of vibratory intensity, frequency, and contractor area," <i>Journal of The Acoustical Society of America</i> , Vol. 82, No. 4, October 1987                                  |                             |                               |               |
|   | C29      | Bejczy et al., "Kinesthetic Coupling Between Operator and Remote Manipulator," <i>International Computer Technology Conference, The American Society of Mechanical Engineers</i> , San Francisco, CA, August 12-15, 1980                           |                             |                               |               |
|   | C30      | Bejczy et al., "A Laboratory Breadboard System For Dual-Arm Teleoperation," <i>SOAR '89 Workshop</i> , JSC, Houston, TX, July 25-27, 1989  |                             |                               |               |
|   | C31      | Ouhyoung et al., "A Low-Cost Force Feedback Joystick and Its Use in PC Video Games," <i>IEEE Transactions on Consumer Electronics</i> , Vol. 41, No. 3, August 1995  |                             |                               |               |
|   | C32      | Marcus, "Touch Feedback in Surgery," <i>Proceedings of Virtual Reality and Medicine The Cutting Edge</i> , Sep. 8-11, 1994   |                             |                               |               |
|   | C33      | Bejczy, et al., "Universal Computer Control System (UCCS) For Space Telerobots," CH2413-3/87/0000/0318\$01.00 1987 IEEE, 1987  |                             |                               |               |
|   | C34      | Rosenberg et al., "The Use of Force Feedback to Enhance Graphical User Interfaces," <i>Stereoscopic Displays &amp; Virtual Reality Systems III</i> (1996), Proc. SPIE 2653, pp. 243-248  |                             |                               |               |
|   | C35      | Schmult et al., "Application Areas for a Force-Feedback Joystick," DSC-Vol. 49, Advances in Robotics, Mechatronics, and Haptic Interfaces, ASME 1993, pp. 47-54  |                             |                               |               |
|   | C36      | Ellis et al., "Design and Evaluation of a High-Performance Prototype Planar Haptic Interface," DSC-Vol. 49, Advances in Robotics, Mechatronics, and Haptic Interfaces, ASME Dec. 1993, pp. 55-65   |                             |                               |               |
|   | C37      | Hannaford et al., "Force-Feedback Cursor Control," NASA Tech Brief, Vol. 13, No. 11, Item #21, Jet Propulsion Lab., Nov. 1989  |                             |                               |               |
|   | C38      | Iwata, H., "Artificial Reality with Force-Feedback: Development of Desktop Virtual Space with Compact Master Manipulator," <i>Computer Graphics</i> , Vol. 24, No. 4, Aug. 1990, pp. 165-170   |                             |                               |               |
|   | C39      | Ramstein et al., "The Pantograph: A Large Workspace Haptic Device for a Multimodal Human-Computer Interaction," <i>Computer-Human Interaction</i> , CHI '94  |                             |                               |               |
|   | C40      | Rosenberg et al., "Commercially Viable Force Feedback Controller for Individuals with Neuromotor Disabilities," USAF Armstrong Lab., May 1996  |                             |                               |               |
|   | C41      | Rosenberg, L., "A Force Feedback Programming Primer - For PC Gaming Peripherals Supporting I-Force 2.0 and Direct - X 5.0," Immersion Corporation, 1997  |                             |                               |               |
|   | C42      | Hasser, C., "Tactile Feedback For a Force-Reflecting Haptic Display," School of Engineering Univ. of Dayton, Dec. 1995   |                             |                               |               |
|   | C43      | Hasser, C., "Tactile Feedback With Adaptive Controller for a Force-Reflecting Haptic Display - Part 1: Design," IEEE 0-7803-3131, Jan. 1996  |                             |                               |               |
|   | C44      | Dennerlein, Jack T. et al., "Vibrotactile Feedback for Industrial Telemanipulators," 6 <sup>th</sup> Ann. Symposium on Haptic Interfaces for Virtual Environment and Telesoperator Systems, ASME IMECE, Nov. 1997                                  |                             |                               |               |
|   | C45      | Akamatsu, M. et al., "Multimodal Mouse: A Mouse-Type Device With Tactile and Force Display," Presence, Vol. 3, No. 4, Winter 1994, pp. 73-80   |                             |                               |               |
|   | C46      | Kelley, A.J. et al., "MagicMouse: Tactile and Kinesthetic Feedback in the Human-Computer Interface Using an Electromagnetically Actuated Input/Output Device," Dept. of Elec. Eng. Univ. of British Columbia, Oct. 1993, pp. 1-27                  |                             |                               |               |
|   | C47      | Ramstein, C., "Combining Haptic and Braille Technologies: Design Issues and Pilot Study," ACM 0-89791-776 Jun. 1996, pp. 37-44   |                             |                               |               |
|   | C48      | Payette, J. et al., "Evaluation of a Force Feedback (Haptic) Computer Pointing Device in Zero Gravity," DSC-Vol. 58, Proc. Of ASME Dynamics Systems and Control Division, ASME 1996, pp. 547-553   |                             |                               |               |
| V   | C49      | Wikar, S. et al., "Development of Tactile Mice for Blind Access to Computers: Importance of Stimulation Locus, Object Size, and Vibrotactile Display Resolution," Proc. of Human Factors Society 35 <sup>th</sup> Annual Meeting 1991, pp. 708-712 |                             |                               |               |
| /MS/  | C50      | Minsky, M. et al., "Feeling and Seeing: Issues in Force Display," ACM 089791-351-5, 1990, pp. 235-242, 270   |                             |                               |               |

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